UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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2674	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
	09/818,081	GETTEMY ET AL.
Office Action Summary	Examiner	Art Unit	
	Kevin M. Nguyen	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>20 September 2005</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>03/08/2004</u>.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Request for Continued Examination

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 09/20/2005 has been entered. An action on the RCE follows:

2.   This office action is made in response to applicant's amendment/arguments filed on 09/20/2005. Independent claims 1, 13, 19 and 25 are amended. Thus, claims 1-29 are currently pending in the application. An action follows below:

Claim Objections

3.   Applicant is advised that should claim 1 be found allowable, claim 25 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5.   Claims 1-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6.   Regarding claims 1, 13 and 25, the terms "n rows", and "m columns" in claims 1, 13 and 25 are relative terms which render the claim indefinite because it is unclear whether n and m are in the range "$-\infty \le n \le +\infty$" and "$-\infty \le m \le +\infty$" or this limitation is part of the claimed invention. The terms "n rows" and "m columns" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

7.   Regarding claims 1, 13, 19 and 25, the term "a fixed pixel border" in line 8 of claim 1, in line 9 of claim 13, in line 14 of claim 19, and the term "a pixel border" in line 9 of claim 25 are relative terms which render the claim indefinite because it is unclear whether one pixel or a plurality of pixels having a predetermined width or this limitation is part of the claimed invention. The terms "a fixed pixel border" and "a pixel border" are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. An image is made up a plurality of pixels which has a predetermined width. How does only a pixel/a tiny pixel have a predetermined width to define a border surrounding a passive matrix?

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

9.   Claims 1-5, 8, 13-16, 19-23, 25, 26, 28, 29 are rejected under 35 U.S.C. 103(a)

as being unpatentable over Taniguchi (IDS cited, US 4,824, 212) in view of Yokota et al

(previously cited, US 6,181,313) hereinafter Yokota.

10.   As to <u>claims 1 and 25</u>, Taniguchi teaches a passive matrix liquid crystal display

device 11 (fig. 1) comprising a passive matrix of pixels yd0-yd203 rows (fig. 1) and xd0-

xd655 columns (fig. 1) of discrete pixels, a XD driver (fig. 1), a YD driver (fig. 1), an

inherent display data memory;

a pixel border comprises non-display regions B having a predetermined width B1,

B2, B3, B4, B5, B6 (fig. 1), the non-display regions surrounding the effective display

region A (fig. 1);

a plurality of pixels (non-display regions B1, B2, B3, B4, B5, B6, fig. 1) is

controlled between on (white state) and off state (black state) (see col. 5, lines 6-15).

Accordingly, Taniguchi teaches all of the claimed limitations of claims 1 and 25,

except for a plurality of pixels each of which is uniformly controlled between an on and

an off state as applied to each by a common threshold signal.

However, Yokota teaches a related passive matrix liquid crystal display device

comprising each of the square frames (turned off) and black squares (turned on) forms

one dot, see Figs. 5(a) to 5(c) and Figs. 8(a) to 8(c), col. 14, lines 29-31. Yokota further teaches any dot was controlled by the voltage obtained by subtracting the potential of the segment signal from the potential of the common signal, exceeds the threshold value of the liquid crystal, see col. 14, lines 47-50.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to implement each of the square frames (turned off) and black squares (turned on) forms one dot, and any dot was controlled by the voltage obtained by subtracting the potential of the segment signal from the potential of the common signal, exceeds the threshold value of the liquid crystal as taught by Yokota in the display unit of Taniguchi in order to achieve the benefit of intend to drive the pixels border display of Taniguchi, because the border display would make possible to display dot-matrix characters at a portion easiest to view, e.g., at the center portion of the liquid crystal display panel in the stand by state of the system (see Yokota, col. 4, lines 13-17), while fabricating the liquid crystal display controller at low cost (see Yokota, col. 3, lines 55-56). This claim is rejected under the prior arts as the best understand by the Examiner due to 35 U.S.C. 112, second paragraph.

11.   As to claim 13, Taniguchi teaches a passive matrix liquid crystal display device 11 (fig. 1) comprising a passive matrix of pixels yd0-yd203 rows (fig. 1) and xd0-xd655 columns (fig. 1) of discrete pixels, XD drivers (fig. 1), YD drivers (fig. 1), an inherent display data memory;

a pixel border comprises non-display regions B having a predetermined width B1, B2, B3, B4, B5, B6 (fig. 1), the non-display regions surrounding the effective display region A (fig. 1);

a plurality of pixels (non-display regions B1, B2, B3, B4, B5, B6, fig. 1) is controlled between on (white state) and off state (black state) (see col. 5, lines 6-15);

Accordingly, Taniguchi teaches all of the claimed limitations of claim 13, except for a plurality of pixels each of which is uniformly controlled between an on and an off state as applied to each by a common threshold signal generated from a common row threshold voltage and a common column threshold voltage, and a contrast adjustment circuit for adjusting voltage levels supplied to said row and column drivers to adjust the contrast of said image of said passive matrix, wherein said contrast adjustment circuit is also operable to adjust said common threshold signal to match the contrast of said passive matrix.

However, Yokota teaches a related passive matrix liquid crystal display device comprising each of the square frames (turned off) and black squares (turned on) forms one dot, see Figs. 5(a) to 5(c) and Figs. 8(a) to 8(c), col. 14, lines 29-31. Yokota further teaches any dot was controlled by the voltage obtained by subtracting the potential of the segment signal from the potential of the common signal, exceeds the threshold value of the liquid crystal, see col. 14, lines 47-50. It is respectfully noted that it would have been obvious to a person of ordinary skill in the art to recognize that the potential of the common signal corresponds to a common column threshold voltage, and the potential of the segment signal corresponds to a common row threshold voltage. Thus,

it would have been obvious to a person of ordinary skill to recognize that "the voltage

obtained by subtracting the potential of the segment signal from the potential of the

common signal, exceeds the threshold value of the liquid crystal" generated from a

common row threshold voltage and a common column threshold voltage. Yokota further

teaches, as noting in Fig. 1 and Fig. 14A, an instruction register 5 (fig. 1) is detailed in

fig. 14A comprising a contrast-adjust-circuit 39 (fig. 14A, col. 13, line 64 through col. 14,

lines 3) coupling to a common driver 16 (fig. 1) via a common shift register 15 (fig. 1).

The contrast-adjust-circuit 39 couples to segment driver 14 (fig. 1) via a liquid crystal

display driver voltage selector 19 (fig. 1) and via a liquid crystal drive bias circuit 18 (fig.

1) which was controlled by the voltage obtained by subtracting the potential of the

segment signal from the potential of the common signal, exceeds the threshold value of

the liquid crystal (col. 14, lines 47-50).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention was made to implement each of the square frames (turned off)

and black squares (turned on) forms one dot, any dot was controlled by the voltage

obtained by subtracting the potential of the segment signal from the potential of the

common signal, exceeds the threshold value of the liquid crystal, and the contrast

adjustment circuit as taught by Yokota in the display unit of Taniguchi in order to

achieve the benefit of intend to drive the pixels border display of Taniguchi, because the

border display would make possible to display dot-matrix characters at a portion easiest

to view, e.g., at the center portion of the liquid crystal display panel in the stand by state

of the system (see Yokota, col. 4, lines 13-17), while fabricating the liquid crystal display

controller at low cost (see Yokota, col. 3, lines 55-56). This claim is rejected under the

prior arts as the best understand by the Examiner due to 35 U.S.C. 112, second

paragraph.

12.   As to claim 19, Taniguchi teaches a passive matrix liquid crystal display device

11 (fig. 1) comprising a passive matrix of pixels yd0-yd203 rows (fig. 1) and xd0-xd655

columns (fig. 1) of discrete pixels, XD drivers (fig. 1), YD drivers (fig. 1), an inherent

display data memory;

        a pixel border comprises non-display regions B having a predetermined width B1,

B2, B3, B4, B5, B6 (fig. 1), the non-display regions surrounding the effective display

region A (fig. 1);

        a plurality of pixels (non-display regions B1, B2, B3, B4, B5, B6, fig. 1) is

controlled between on (white state) and off state (black state) (see col. 5, lines 6-15).

        Accordingly, Taniguchi teaches all of the claimed limitations of claim 19, except

for a processor, a bus, a memory unit, and a user input device, and a plurality of pixels

each of which is uniformly controlled between an on and an off state as applied to each

by a common threshold signal.

        However, Yokota et al teach a portable electronic device (fig. 15A) comprising a

processor 3 (fig. 15A), bus (wires 51, 54, fig. 15A), a memory unit 7 (fig. 1), a user input

device 52 (figure 15A, col. 15, lines 1-14). Yokota further teaches a related passive

matrix liquid crystal display device comprising each of the square frames (turned off)

and black squares (turned on) forms one dot, see Figs. 5(a) to 5(c) and Figs. 8(a) to

8(c), col. 14, lines 29-31. Yokota further teaches any dot was controlled by the voltage

obtained by subtracting the potential of the segment signal from the potential of the

common signal, exceeds the threshold value of the liquid crystal, see col. 14, lines 47-

50.

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention was made to implement the control circuit including the

processor, bus, the memory unit, the user input device, and each of the square frames

(turned off) and black squares (turned on) forms one dot, any dot was controlled by the

voltage obtained by subtracting the potential of the segment signal from the potential of

the common signal, exceeds the threshold value of the liquid crystal as taught by

Yokota in the display unit of Taniguchi in order to achieve the benefit of intend to drive

the pixels border display of Taniguchi, because the border display would make possible

to display dot-matrix characters at a portion easiest to view, e.g., at the center portion of

the liquid crystal display panel in the stand by state of the system (see Yokota, col. 4,

lines 13-17), while fabricating the liquid crystal display controller at low cost (see

Yokota, col. 3, lines 55-56). This claim is rejected under the prior arts as the best

understand by the Examiner due to 35 U.S.C. 112, second paragraph.

13.   As to claims 2, 20 and 28, Yokota et al teaches, as noting in Fig. 1 and Fig. 14A,

an instruction register 5 (fig. 1) is detailed in fig. 14A comprising a contrast-adjust-circuit

39 (fig. 14A, col. 13, line 64 through col. 14, lines 3) coupling to a common driver 16 (fig.

1) via a common shift register 15 (fig. 1). The contrast-adjust-circuit 39 couples to

segment driver 14 (fig. 1) via a liquid crystal display driver voltage selector 19 (fig. 1)

and via a liquid crystal drive bias circuit 18 (fig. 1) which was controlled by the voltage

obtained by subtracting the potential of the segment signal from the potential of the

common signal, exceeds the threshold value of the liquid crystal (col. 14, lines 47-50).

14.   As to claims 3, 14, 21 and 29, Taniguchi teaches a foreground comprising the

desired characters or figures displayed on the screen 11a can be seen from the front

side of the screen 11a (col. 5, lines 34-37). A white background comprises when the

display screen 11a is of the normally white type, on the other hand, the non-display

region B1 becomes bright so that the black frame disappears (col. 5, lines 47-49).

15.   As to claims 4, 5, 15 and 22, Taniguchi teaches a passive matrix is negative

mode liquid crystal display 11 technology (col. 3, line 60) is super twisted nematic.

16.   As to claims 8, 16 and 23, Yokota et al teaches the voltage (a driver signal and a

single control signal) obtained by subtracting the potential of the segment signal from

the potential of the common signal, exceeds the threshold value of the liquid crystal (col.

14, lines 47-50).

17.   As to claim 26, Taniguchi teaches the pixel border comprises non-display regions

B having a predetermined width B1, B2, B3, B4, B5, B6 (fig. 1).

18.   As to claims 11, 17 and 27, Taniguchi teaches all the subject matter claimed

limitations with the exception of particular size of "the predetermined width is two

pixels." Absent a showing of criticality it would have been within the level of skill in the

art and obvious to one having ordinary skill to engineering design the size of a well-

known element is normally not directed toward patentable subject matter as desired as

was judicially recognized in re Rose, 105 USPQ 237 (CCPA 1955) and in re Reven, 156

USPQ 679 (CCPA 1968).

19.   As to claims 12, 18 and 24, Taniguchi teaches all the subject matter claimed

limitations with the exception of particular size of "said passive matrix comprises 160

rows and 160 columns of discrete pixels." Absent a showing of criticality it would have

been within the level of skill in the art and obvious to one having ordinary skill to

engineering design the size of a well-known element is normally not directed toward

patentable subject matter as desired as was judicially recognized in re Rose, 105 USPQ

237 (CCPA 1955) and in re Reven, 156 USPQ 679 (CCPA 1968).

20.   Claims 6, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Taniguchi in view of Yokota, and further in view of Morimoto (previously cited, US

6,535,188).

21.   As to claim 6, the combination of Taniguchi and Yokota teaches all of the claimed

limitations of claim 1, except for "the passive matrix is electronic ink technology."

However, Morimoto teaches a liquid crystal display device including electronic ink

12 (figure 2, column 5, lines 19-20).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention was made to implement the passive matrix with the electric ink

technology as taught by Morimoto in the combination of Taniguchi and Yokota in order

to achieve the benefit of intend to apply the passive matrix with the electric ink

technology in the display device of Taniguchi and Yokota, because the passive matrix

with the electric ink technology would reduce the thickness fluctuation of liquid crystal

layer and avoid an occurrence of a portion of a display image deterioration such as a

deviation of contrast ratio (column 3, lines 25-28 of Morimoto).

22.   As to claims 9 and 10, Morimoto teaches each pixel including red, green, blue

sub pixel sharing a common row and spanning three columns (see figure 1).

23.   <u>Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi</u>

<u>in view of Yokota, and further in view of Colgan et al (previously cited, US 6,323,834).</u>

As to claim 7, the combination of Taniguchi and Yokota teaches all of the claimed

limitations of claim 1, except for the passive matrix is microelectromechanical system

technology.

However, Colgan et al teaches the passive matrix display 154 including

deformable mirrors 133 (figure 22, column 12, lines 23-26).

Therefore, it would have been obvious to a person of ordinary skill in the art at

the time of the invention was made to implement the passive matrix display 154

including deformable mirrors 133 as taught by Colgan in the combination of Taniguchi

and Yokota in order to achieve the benefit of intend to apply the passive matrix with the

deformable mirrors technology in the display device of Taniguchi and Yokota, because

the passive matrix with the deformable mirrors technology would provide high reflectivity

and good contrast ration while reducing manufacturing costs (column 7, lines 52 and

line 63 of Colgan et al).

Response to Arguments

24.   Applicant's arguments with respect to claims 1-29 have been considered but are

moot in view of the new ground(s) of rejection.

Conclusion

25.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Nguyen whose telephone number is 571-272-7697. The examiner can normally be reached on MON-THU from 9:00-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick N. Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the Patent Application Information Retrieval system, see http://portal.uspto.gov/external/portal/pair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin M. Nguyen
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Art Unit 2674

KMN
January 10, 2006

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